

TORII
Appl. No. (To be Assigned)
(Division of USSN 10/026,619
September 8, 2003

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 12-20 - Cancelled.

1. (Currently Amended) An air induction control apparatus for an internal combustion engine comprising:
 - a throttle valve supported by a throttle shaft rotatably within an intake air passage to control the quantity of intake air flowing through the intake air passage;
 - an actuator working to produce an output which rotates the throttle shaft for opening and closing said throttle valve selectively between a fully closed portion and a fully opened position;
 - a first stopper defining a middle position at which said throttle valve is held between the fully opened and closed positions when said actuator outputs no torque;
 - an opener member connected to the throttle shaft to be rotatable together with the throttle shaft;
 - a first spring winding disposed so as to exert a first spring pressure on said opener member in a first rotational direction in which said throttle valve is rotated from the fully opened position to the middle position, when said actuator produces no output, said first spring winding being urged at an end thereof into constant engagement with said first

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stopper to hold said opener member from rotating in a second rotational direction in which said throttle valve is rotated from the fully closed position to the middle position; and

a second spring winding having a first and a second end between which said opener member extends, when said actuator produces no output, the first end abutting against a second stopper, the second end abutting against said opener member so as to exert a second spring pressure on said opener member in the second rotational direction to nip said opener member between the second end of said second spring winding and the end of said first spring winding elastically through the first and second spring pressures, thereby holding said throttle valve at the middle position.

2. (Original) An air induction control apparatus as set forth in claim 1, wherein said first and second stoppers are formed by a one-piece member having a plane against which the end of said first spring winding and the first end of said second spring winding abut.

3. (Original) An air induction control apparatus as set forth in claim 1, wherein the first and second stoppers have surfaces rounded so as to establish a point contact with the end of said first spring winding and the first end of said second spring winding, respectively.

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4. (Original) An air induction control apparatus as set forth in claim 1, further comprising a middle position adjusting mechanism designed to shift a contact of the end of the first spring winding with said first stopper in one of the first and second rotational directions to adjust the middle position to a desired one.

5. (Original) An air induction control apparatus as set forth in claim 1, further comprising a spring holder working to hold the end of said first spring winding and the first end of said second spring winding from shifting out of engagement with the first and second stoppers.

6. (Original) An air induction control apparatus as set forth in claim 5, wherein said spring holder is implemented by pins installed on said opener lever.

7. (Original) An air induction control apparatus as set forth in claim 1, wherein said second winding provides an elastic nip to said opener member through the first and second ends of said second winding within a range in which said throttle valve is rotated from the fully opened position to the middle position.

8. (Original) An air induction control apparatus as set forth in claim 1, wherein each of said first and second spring windings is made of a coil spring having a given length extending parallel to the throttle shaft.

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9. (Original) An air induction control apparatus as set forth in claim 8, wherein said first and second spring windings are wound in alignment with each other around a shaft extending parallel to the throttle shaft.

10. (Original) An air induction control apparatus as set forth in claim 8, wherein said first and second spring windings are wound in alignment with each other around a shaft extending in alignment with the throttle shaft.

11. (Original) An air induction control apparatus as set forth in claim 1, wherein the first and second stoppers are implemented by a one-piece member formed on a throttle body, and wherein the end of said first spring winding and the first end of said second spring winding are joined to each other to form a connection, the connection being urged into constant engagement with the one-piece member when said actuator outputs no torque.

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Respectfully submitted,

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